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A Lesson in Forestry.

MR. FERNOW'S Report of the Division of Forestry of the Department of Agriculture for last year, which has been published in pamphlet form, makes seventy pages of instructive matter for American readers who wish to form intelligent opinions on questions relating to forestry in this country. Mr. Fernow's account of the varied work of the Division during the year, together with the statistics of the consumption and supply of forest-products in the United States, with the lessons drawn from them, are all interesting, but we wish specially to call attention to the section which describes the forest exhibit of the German Government, which was installed in the Forestry Building at the Chicago Fair. The usefulness of this collection, as we glean from its description, and as we remember the exhibit itself, was not primarily to illustrate the degree of perfection to which forestry as a science and an art had reached in that country. Its chief value was rather to familiarize the people who saw it and the people who will read this description of it, with the fact that there is such a science and such an art, and that if our forests are ever to occupy their appropriate place in the economy of the nation they must be managed on some system which is based on experimental knowledge of the kind which has been gained in Germany.

It is often said that European forestry methods can never be adopted here, because (1) the spirit of personal independence fostered by our institutions would never tolerate such assumptions by any central power as are common in Germany; and (2) because our climate and soil are so different, and the trees we grow here vary so much in habit from those of the Old World that German experience would be of no benefit. There is some truth in both these statements, but, after all, the popular idea of the amount of control exercised by the various governments in Europe over the wooded parts of the country is an exaggerated one, and it is also true that whenever the American people fully realize the need of some comprehensive system of forest-management they will take practical steps toward the inauguration of such a system without any fear of surrendering their liberties. In the second place, it is perfectly true that our profitable forests will consist of species different from those which make up European forests, and those forests will be subject to different conditions of soil and climate, but the general laws of plant-growth are the same on every continent, and it is absurd to say that we cannot profit by what has been learned in other countries. Sir Dietrich Brandis established a successful system of forestry in British India, because he had learned the reasons why it was necessary to mingle trees of different habits and requirements in regard to light and shade. He had no experience in planting Teak and Bamboo in Germany, but he used them as he had used trees which answered a similar purpose at home. Of course, we must acquire an experimental knowledge of the habits of our native timber-trees, so that we can give intelligent reasons for planting a given species in a given place and in given company. But, after all, our knowledge of our native trees will be valuable, because it will enable us to know what place they are to fill in a system of forestry based on principles which have been already established as sound in practice.

But, as we said at the outset, the value of this exhibition was not primarily to show us a model to be copied in practice here, but to show how much study and investigation it has cost to establish the principles and elaborate the plans upon which the best practice rests, and how thorough must be the preparation and equipment for carrying on the work with intelligence and accuracy in every detail. How the survey of each forest-district is carried out to its minutiæ is seen not only in the compartment maps in which the district is parceled out, but in relief models and contour maps, and even in such refinements as soil-maps, which indicate in colors the kinds of surface soil in the different compartments of the forest, with their quality and depth, together with the character of the subsoil, the distance to ground-water and other details. Since a second forest-crop is to be produced as soon as one forest-crop is harvested, the natural forces and conditions of thrifty forest-growth must be husbanded and the manager must have an intimate knowledge of the actual conditions of the forest at any given time, so that, in addition to the maps we have already spoken of, there are others which give a complete description of the various forests, of their condition, and the proposed manner of using and reproducing them—maps showing at a glance not only the quality of the soil, etc., but showing the kinds of timbers and their admixture in each compartment; how old the trees are, how they have been treated, at what period they are to be cut, and much besides.

All this occupies but a few paragraphs in a chapter which contains a great deal more of equal interest in regard to the valuation of the growing timber, calculating the forest yield, and determining the methods of harvesting and transportation, besides condensed descriptions of the practice of regenerating the forest, of underplanting and thinning, with an appendix on Forest-education and Forest-literature. The lesson of it all is, that while our state and national governments allow the public forests to be preyed upon by timber thieves and burned up by incendiaries, and while the owners of private woodlands are making no provision for future supplies, there are countries in the world where it has been proved that an enlightened forest policy will insure a continually increasing supply of forest-products. We cannot expect at once to organize a system of equal efficiency, but we can, at least, begin to feel that there are better ways of managing our forest-property than our own plan of cutting more timber every year than the forests produce, and of recklessly removing the tree-cover from the sources of our great streams without a single thought of what will be its effect upon their flow. It seems almost impossible for any thoughtful man to read this illustrative sketch of German forest-methods without concluding that since some system of forest-management must in the end be carefully wrought out, the sooner we begin to lay a broad-set foundation for it the better. And inasmuch as the system must ultimately be

based on knowledge and experience, the sooner we begin to instruct young men in the elements of silviculture the better. Beyond question it is high time that the experiment stations realized that from the very nature of their position much responsibility rests upon them, and that they should take hold of the work at once with some vigor and determination.

The autumn colors have almost disappeared from our forests and thickets in this latitude, but there are persistent leaves still glowing here and there to remind us of their past splendor. The brilliancy of the foliage at this season is one of the spectacles of the year of which one never tires, and when trees are to be selected for parks and roadsides, and even for private places, it is surprising that their appearance at this season is not more carefully considered. It is always our purpose in describing trees or shrubs to explain their value for all seasons of the year, and we are glad to observe that there is a growing demand for shrubs with ornamental berries, which add another touch of color to the landscape at this season. Our native Hollies and Winter Berries, with their bright scarlet fruit, the Thorns and Crab-apples, many of the Barberries, Viburnums, Cornels, Honeysuckles and Roses, our climbing Bitter-sweet and its Asiatic congener, Celastrus articulata; Symplocos cratægioides, which as yet has no common name, but which is notable for its ultramarine-blue fruit—all these and many more are growing in popular favor, and are more often seen in planting lists. We doubt, however, whether much consideration is given to autumn color when trees are selected for planting. Our Oaks and Maples, our Tupelo and Liquidambar and Sassafras, with smaller trees, like the Sorrel and Dogwoods, are beautiful at any season, but they are magnificent when in full October color. Many shrubs, both native and foreign, are quite as brilliant as the larger trees. Our Yellow Root, with its scarlet and orange; our high Blueberries and some other Vacciniums; the Leucothoës, Sumachs and Viburnums and Rhododendron Vaseyi, and some of the Asiatic Spiræas, with many others, are all clothed in autumn foliage, which is beautiful beyond description. But, although certain species and varieties are invariably beautiful, there are individuals of these classes which excel the rest. Every one can recall some Sugar Maple-tree, for example, which turns to more gorgeous colors than any of its neighbors; and in the first volume of this journal we suggested the propriety of propagating from trees of this character, so as to secure this particular quality. In scores of instances nurserymen have perpetuated some individual trait like the form or foliage in different Maples, Locusts, Oaks and other trees, as the long list in every catalogue will show. Why would it not be wise for nurserymen to select for propagating plants whose leaves have exceptionally pure color in autumn? It would seem that there ought to be a place somewhere for shrubs and trees which could be commended for their singular beauty at this season.

Accumulation without Disposition.

ONE of the dangerous tendencies of modern gardens is to sacrifice beauty of effect to the multiplication of specimens. In these days when so many new and interesting varieties of shrubs and trees are constantly being introduced, the enthusiastic lover of a garden naturally wishes to try everything, and so he plants each novelty without considering whether it will harmonize with his previous arrangement. There are many apparent justifications of this habit. One failure is that very few genuine garden lovers are able to construct their places from the beginning or to have any clear conception of how far this passion, which grows by what it feeds on, is likely to conduct them. Most people furnish their grounds as they do their libraries—one plant and one book at a time. The book may be in several volumes, and the shrubs may come by the dozen, but the purchase comes from the want of the moment, not from a foreseen plan, and is based on novelty. Even if a man's grounds have been laid out for him by a skillful landscape-gardener, the introduction of a fascinating novelty is too much for his artistic virtue. Have it he must, and a place must be found for it somewhere. The consequence is that small country places and large grounds soon become overstocked, not only to the detriment of the effect, but also to that of the plants and trees themselves, which suffer from crowding. If, even when let alone, the tendency of a growing picture is to spoil itself, how much the more must it suffer by the interpolation of passages never allowed for in the original design!

In places of more pretension one sees the same tendency to overload, to stick things in—to sacrifice harmony to opulence, simplicity to the love of accumulation. If an Umbrella Pine or a Cedar of Lebanon is a rare and expensive tree, it must be had, and planted in a conspicuous situation that every one may see it, without any reference to the fact that neither of these important trees can be set out without the risk of their striking a false note, and swearing at the rest of the composition, and it is the same with shrubs and flowers. Yet one of the principles urged in the earliest and best works upon landscape-gardening is that selection is far more important than variety, and that a better effect can always be produced by masses of one kind of tree than by clumps composed of many different trees. Uvedale Price, in his essays on the picturesque, depreçates the practice of mixing many sorts to produce variety, and adds:

> Variety, of which the true end is to relieve the eye, not to perplex it, does not consist in the diversity of separate objects, but in the diversity of their effects when combined together, so as to form a difference of composition and character. Many think, however, that they have obtained that grand object when they have exhibited in one body all the hard names of the Linnæan system; but when as many plants as can be well got together are exhibited in every shrubbery or in every plantation, the result is a sameness of a different kind, but not less truly a sameness than would arise from there being no diversity at all; for there is no having variety of character without a certain distinctness, without certain marked features on which the eye can dwell.

The trouble with places in which accumulation is the guiding spirit, is that there is a weariness of detail about them; one is more occupied with the specimens than with the picture; in short, the porch is bigger than the temple. This is a crying error whether it occur in park or garden. The larger and more united the landscape effect, the simpler must be its component parts. In Repton's *Inquiry into Changes of Taste* he says, "There is more variety in passing from a grove of Oaks to a grove of Firs than in passing through a wood composed of a hundred different species." There are places of charming possibilities which leave no more consecutive effect upon the mind than the study of a botanical dictionary. The only memory which survives after a day's walk through such a museum is that of two or three interesting specimens. Of course, a man has a right to make a museum of his place if he desires, and in that case his collection will have its highest value when it is instructively classified. It will fail of its purpose as a museum if the plants are confusedly scattered about wherever the gardener could find a hole for each one in some unoccupied corner.

This fault is the same one we deprecate in materialistic painting, where the artist occupies himself with each leaf upon the tree, or each stone upon a sea-beach, rather than with the great harmonious sweep of foliage, or the shock of the ever-changing wave as it strikes the sands. It takes courage to sacrifice a specimen to a picture, the specimen is so enticing, so novel, so altogether the best of its kind; its blossom is unrivaled, its fruit a marvel, its growth unparalleled, we must have it to show.

Thus, in humble gardens, we find a giant Magnolia cultivated in a garden-patch, a new Hollyhock looming in a Mignonette bed, a Japanese Cypress tucked away under an Oak, and a row of Spruces struggling in an Apple orchard. Our parks are not free from this vice of confusion. There

seems a perfect mania for collections of Retinisporas under deciduous trees, where they look badly and cannot grow; for the interpolation of evergreens of all sorts in the most unlikely and unbecoming places, simply that when the trees above them have lost their leaves there may be something green left to look at. The result of this disposition is every way disastrous. But, never mind, we have accumulated specimens!

So the habit spreads, and imagination gives place to the catalogue of novelties, the river-view is obstructed by a group of Cercidiphyllums, the sweet calm stretch of meadow in the distance is hidden by a bed of flaming Azaleas, magnificent it is true, but in the way. Rhododendrons especially seem to get put in the wrong places, where their shining dark leaves conflict with the softer tints of the surrounding shrubbery, and their dense masses shut out everything else. This is the age of detail, of specialties, of curiosities and accumulations, and few, indeed, are the authorities who can show people what to do with them. Left to themselves the planters run riot, and shrubberies are turned into collections of bibelots and curios, and the timber-belts are tedious from their very variety.

Not thus does Nature disseminate her plants, but the cions cluster about the parent and her changes are gradual and harmonious. From group to group she passes with tender gradations of size and color. Above all things, whether in the animal or vegetable kingdoms, she is indifferent to eccentricity, and loves to enforce the type. This great principle of mass—of generalization, as opposed to the individual—is the most marked characteristic of natural development. Therefore, let the collector of specimens harmonize his groups above all things, whereby the individuals will gain rather than lose in value, by acquiring true significance in relation to corresponding though different types.

Hingham, Mass. *M. C. R.*

Foreign Correspondence.

London Letter.

Chrysanthemums are now the principal topic here with horticulturists and the horticultural journals. They are a prominent feature at all exhibitions held during November; indeed, many small towns in England are unable to hold an exhibition or show unless it be of Chrysanthemums. London has had two great exhibitions of these plants within a week—at the Crystal Palace on the 2d and 3d, and at the Aquarium on the 6th, 7th and 8th of the month. It was a matter of general surprise among growers to find such excellent examples of flowers, particularly of the Japanese kinds, after the unfavorable season we have had. True, the weather had affected the incurved varieties, which lacked size, substance and color, compared with the flowers of last year, for instance; there was also a marked falling off in the specimen plants. But I have never seen such well-flowered trained specimens as the six plants which won first prize at the Aquarium for Mr. D. Donald, of Leyton. They were each about eight feet over, and averaged two hundred good blooms to a plant. As examples of exceptional skill in cultivation, they were a feature of the exhibition, but in a picturesque sense they were excessively ugly. One rarely sees a naturally grown plant of Chrysanthemum at an English exhibition, and in view of the fact that the Chrysanthemum under ordinary treatment forms a most attractive bush, this is remarkable. If a group of untrained plants in flower is shown it is invariably made up of plants carrying three or four large flowers, each supported on stiffly staked stems. It seems to be the misfortune of the organizers of exhibitions that they must make everything subservient to the trays of big blooms, which certainly are marvelous to look at, but which are deprived of most of their picturesqueness by trussing them on trays. An exhibition in which all the plants should be natural, and in which the number of flowers borne by each plant would count in the points, would be a much greater attraction to laymen, as well as to growers, than the present shows are. The same may be said of the cut flowers. A feature of the National Chrysanthemum Society's great annual exhibition, in recent years, has been the classes for the arrangement of Chrysanthemum-flowers for decorative effect. This year this part of the exhibition was by far the most attractive. The flowers had long, leafy stems, and they were arranged loosely and artistically in ornamental vases. Such accessories as the colored leaves of Ampelopsis, various Oaks, the feathery sprays of Asparagus, Ferns, the leaves of Crotons, etc., were permitted. The effect was, in most cases, magnificent, an object-lesson of the greatest value, showing as it did the decorative qualities of the Chrysanthemum in a way that neither the trussed blooms on the trays nor the painfully trained specimen plants, nor the stiff-legged plants in the groups could even suggest.

The most successful arrangement of this character was set up by Mr. H. J. Jones, of Lewisham, whose vases and epergnes were large, yet elegant, and they were filled with Chrysanthemums, mostly Japanese, grand flowers too, whose beauty came out amidst the setting of feathery Fern and colored leaf.

In England, the Japanese varieties are now first, and the rest nowhere. They are a long way ahead of all the other classes in point of elegance, color and variety. Take a handful of the flowers of the pick of the Incurved, the Queen of England group, say, and compare them with such Japanese sorts as E. Molyneaux, Stanstead White, Sunflower, Colonel W. B. Smith and Florence Davis. Ladies do not care for the incurved varieties, and cannot be persuaded to take any but the Japanese for floral decorations. The Anemone-flowered varieties, the Pompons and the Reflexed are worth growing, but the Japanese sorts now eclipse them all. There is, however, one section of Chrysanthemums which has a promising future, and that is what is called the single-flowered section. They are never prominent in exhibitions, but gardeners, who know their value in the conservatory and for cut-flower purposes, grow them in quantity. There is no more beautiful variety than Mary Anderson, which is a glorified moon-eyed Daisy.

English growers and breeders of Chrysanthemums are largely on the increase. Mr. Godfrey, of Exmouth, the raiser of the beautiful Florence Davis, Beauty of Exmouth and other first-rate sorts, has this year some seven thousand seedlings on trial, and he is only one of dozens who are working on an equally large scale. Seedlings of promise are submitted to the societies for certificate, and it has now been decided to exclude from the official catalogue of cultivated Chrysanthemums, published by the National Society, all new-named sorts that fail to obtain this certificate. By the way, I can recommend this catalogue to American growers of Chrysanthemums. It contains a classified descriptive list of all the sorts grown in 1890, with two supplements, bringing it down to the present time, besides other interesting and useful information. It is published at the price of one shilling, and may be obtained from Mr. R. Dean, the Secretary of the National Chrysanthemum Society, Ranelagh Road, Ealing.

Some idea of the magnitude of the exhibition and the keenness of the competition may be gathered from the number of competitors in each class. Thus, for the prizes for forty-eight Japanese blooms, there were eleven competitors; five societies competed for the National Challenge Trophy; there were seventeen stands of one dozen distinct incurved varieties, twelve of two dozen Japanese, fifteen of one dozen Japanese, and so on. The exhibitors hailed from all parts of the country, chief honors being won by Mr. Lees, gardener to F. A. Bevan, Esq., Barnet; Mr. Mease, gardener to A. Tate, Esq., Leatherhead; Mr. Donald and Mr. H. J. Jones, of Lewisham. There are separate classes for amateurs and professionals (private gardeners) as well as for nurserymen. The latter, however, exhibit only elaborate floral arrangements or groups of plants not for competition. Some nurserymen show what they call

only ordinary flowers of good sorts, so that ordinary growers may see what their efforts are likely to result in. Twenty-one new varieties received certificates, eleven of them Japanese, three Incurved, four Anemone, two Reflexed and one Pompon. The pick of them were Duchess of Wellington, with long, curling, golden yellow florets; Monsieur Pankoucke, also golden yellow, the florets long and narrow; Miss Maggie Blenkvion, a large, full, yellow and bronze Japanese; Globe d'Or, a large full-flowered Incurved with broad golden yellow, bronze-tipped, florets; Niveus, of American origin, a pure white, large, full-flowered variety of the Japanese section. Two distinct and promising new Anemone-flowered varieties, named Caledonia, white, with a mauve-tinged centre, and Owen's Perfection, yellow and lilac, deservedly obtained certificates.

In addition to Chrysanthemums, there were numerous exhibits of fruit, the grapes being particularly good, and vegetables. There were also mixed groups of plants, including Orchids, from several of the leading London nurserymen.

Mr. Cannell's Pelargoniums.—I have had occasion to speak of these several times in recent years, but they are as delightful to look upon again as is the return of spring. The exhibit this year consisted of a long bank formed of Ferns and Violets, and set all over with enormous bouquets of Pelargonium-flowers of wonderful color, size, substance and variety. No one has ever attempted to rival Mr. Cannell as a grower and exhibitor of Zonal Pelargoniums in winter. The Aquarium show would be deprived of one of its principal attractions if Mr. Cannell's flowers were not there. The Zonal Pelargonium has come to be looked down upon by some as vulgar and commonplace, but I question if there is anything in the whole range of garden exotics which has the same all-round value as the race of the Scarlet Geranium. It is impossible for any one to look upon the glories of Mr. Cannell's collection of these plants when at their best in winter and not grow enthusiastic over their great beauty and usefulness.

London. *W. Watson.*

Plant Notes.

The Wax Myrtles of the Sea-coast of Eastern North America.

As early as 1691 Plukenet published in his *Phytographia* a very good figure of the common Myrica or Wax Myrtle of the south Atlantic and Gulf coasts of North America; Catesby, in the *Natural History of Carolina*, which appeared in 1731, also published an excellent figure of this plant, together with an indifferent figure of what he considered a second species which he distinguished by its broader leaves and humbler stature. Of the first of these plants, Linnæus made his Myrica cerifera, and of the second the variety *β.* of that species, extending its range into Pennsylvania. Miller, in the eighth edition of *The Gardeners' Dictionary*, was the next author after Linnæus who described these plants, making of Catesby's shrubby species his Myrica Carolinensis. Walter recognized varieties on the Carolina coast with subserrate and entire leaves. Michaux also united Catesby's two plants specifically, calling Plukenet's plant variety arborescens, and giving its range from Carolina to Florida, and calling Linnæus's variety *β.* var. media, with a range from New England to Florida, and making a variety pumila, ranging also from Carolina to Florida. Pursh followed Miller, adopting, however, Michaux's variety pumila, and also the Myrica Pennsylvanica established by Lamarck, which, judging by the beautiful figure in the *Nouveau Duhamel*, is only the common Wax Myrtle of the northern states. Elliott adopted Miller's view, although he included the variety pumila of Michaux in his Myrica Carolinensis, while Chapman has followed Michaux. The botanists, including Bigelow, Torrey, Gray and Britton, who have written specially of the plants of the northern states, have referred the common coast Myrica to the Myrica cerifera of Linnæus without even a question of its being a variety of that species. When the plants are seen growing, however, it is impossible to adopt this view, or admit that the northern and southern plants are varieties of one species; and in describing the trees of this genus for *The Silva of North America* I shall follow Catesby, Miller and Elliott, and call the southern arborescent plant Myrica cerifera, and the northern shrubby plant, which also ranges far to the south, Myrica Carolinensis.

Myrica cerifera (see page 476) is a tree sometimes forty feet in height, with a tall stem covered with pale smooth bark, and sometimes only a few inches thick, although occasionally more than a foot in diameter, and a narrow head of slender upright branches, which are usually forked toward the extremities. The leaves, which remain on the branches until after the appearance of those of the following year, are lanceolate-obovate, often entire or furnished at the apex with a few coarse or minute teeth, glabrous, two and a half to three inches in length, usually from a quarter to a half of an inch in width, although occasionally nearly two-thirds of an inch wide, and covered with bright golden resinous glands, which are so thick and conspicuous on the young foliage that it appears bright yellow. The leaves have a strong resinous odor, quite unlike the peculiar odor of the northern plant. The fruit is about one-sixteenth of an inch in diameter and pale blue.

Myrica cerifera grows in low wet holes in the maritime Pine belt and in deep swamps near the coast under the shade of Red Maples, Cotton Gums, Sweet Gums and Bay-trees; and where roads or openings have been made through them this tree may often be seen bending down along the margin of the forest, its long slender stem being unable to hold the head erect unless surrounded by other trees. I have found it near Cape Charles, in Virginia; it is very common on the coast and islands of the south Atlantic states from Cape Fear River south to the Florida keys and on the Gulf coast as far west, at least, as Berwick Bay, and probably farther, although I do not remember to have seen it on the Texas coast; it is said to grow on several of the Antilles, and I have collected it in Bermuda, where it is abundant. There is a form of this species (the variety pumila of Michaux) which grows in the sandy Pine-barrens of the south Atlantic and Gulf coast-region, usually in rather low, slightly moist, places not far from the margins of swamps, which is often only a foot high, but otherwise is not distinguishable from the arborescent form except in its narrower, smaller leaves and rather smaller fruit.

Myrica Carolinensis (see page 477) is a low shrub which often forms broad dense thickets, rarely six to eight feet high, and usually not more than two or three feet high. The leaves are broadly obovate, coarsely serrate above the middle with a few large teeth, or entire or nearly so, slightly pubescent on the lower surface, hirsute on the midribs, two and a half to three and a half inches long and three-quarters of an inch to an inch and a half wide. The resinous glands are smaller than those on the leaves of Myrica cerifera, and never abundant enough to give the foliage the yellow color which is so marked in that species. The fruit is rather more than an eighth of an inch in diameter, or more than twice as large as that of Myrica cerifera, and rather paler, although the color of the fruit of both these plants varies considerably on different individuals.

Myrica Carolinensis is common on the shores of the Great Lakes and near the ocean from southern Maine to southern New Jersey, and at the north inhabits dry hill and sandy shore-dunes; south of New Jersey it is rare, although I have seen occasional isolated plants near Wilmington, North Carolina, at Bluffton, South Carolina, and near Mobile, growing in swamps with Myrica cerifera; and Dr. Chapman and Mr. Curtiss have collected it at Apalachicola, Florida.

Information on the distribution of these two plants on the Gulf coast west of Mobile Bay and of the northern range of Myrica cerifera, which may be expected to reach

the southern peninsula of Delaware, and possibly southern New Jersey, is still much needed, and these notes are written in the hope that botanists will communicate with me the results of their observations upon them, especially in regard to their distribution.

More information on the distribution of Myrica inodora, too, is needed. This is a beautiful little tree with pale bark, thick obovate entire dark green and very lustrous persistent leaves, and fruit sometimes nearly a quarter of an inch in diameter. It was discovered by William Bartram in a swamp near Mobile, where it still grows, as well as in one or two others in the same region; it has been found near Apalachicola, and is comparatively common on the Indian River, in Florida, but, although first described more than a century ago, it is still one of the least-known of American trees. Information about its range northward in Florida and westward from Mobile Bay, as well as better specimens of the flowers than can now be found in herbaria, are needed. *C. S. S.*

ACER PALMATUM.—This is one of the most common of the Maples cultivated in Japan, and it was introduced into this country something like thirty years ago by Mr. Thomas Hogg. It is an exceedingly variable species, ranging in habit from a low, trailing shrub to a tree of something like fifty feet tall in its native country. The shape of the leaves shows quite as wide variation, and their peculiarities of cutting and color have been preserved by nurserymen, so that a great number of forms with Latin names are to be found in commerce. Of all these forms the normal type is much the best, and it makes a neat round-headed tree of the second size. The best specimens we know, and, perhaps, the earliest ones sent to this country, are to be found in Prospect Park, Brooklyn. There are three trees there which are probably thirty feet in height, and although two of them have been badly crowded, they are still fairly well-formed and beautiful specimens. One of their peculiar merits is exhibited at this season of the year, since, like many other Japanese plants, they retain their leaves in autumn long after our native species of the same genus are entirely bare of foliage. No doubt, this is due to the fact that the autumn in eastern Asia is fully a month later than it is in this country. The leaves of these Japanese Maples turn to a very brilliant color before they fall, and it is always a surprise to come upon this intensely scarlet foliage in late November. This peculiarity alone makes them valuable for ornamental planting. They are particularly useful on the edges of a wood border, where, of course, they cannot make perfect trees, but their foliage forms a fine forest-edging all the season through, and just now in such places it is exceptionally beautiful. These trees have shown a disagreeable habit in this country of dying back in the summer without any apparent reason, but this may be due to the fact that the plants brought here have been propagated from worn-out nursery-stock, and, perhaps, trees from seed gathered in Japanese forests would be more thrifty and long-lived.

ROSA SINICA (LÆVIGATA).—The Cherokee Rose is getting better known, now that so many people make the south a winter resort, and travelers bring back pleasant reminiscences of its great prodigality of growth and bloom. Although a native of China, it is so well established in the Carolinas, Georgia and Florida, it is hard to believe that it is an introduced species. It is not hardy at the north, nor is it easy to grow in pots, but if given a good border, or even a bench, in a cool greenhouse, it will thrive without much care and give an abundance of its beautiful single white flowers from January to March. It should be planted in full sunlight and trained to the rafters or wall, in good, rich and well-drained soil, and, most important of all, it should have a close cutting back, much the same pruning one would give a Grape-vine, in September or early in October. A young plant from a six-inch pot set in the border in June will make sufficient growth to flower the following January; the first season the severe pruning should be omitted, but never afterward. When the plants have been established for several years some old wood should be cut out annually in March or April to encourage the growth of new shoots. Plenty of food should be given when it is growing best. The propagation is by hard-wood cuttings in October. We have often commended this Rose, but it is a plant which it is difficult to overpraise.

POLYGONATUM MULTIFLORUM.—The common Solomon's Seal is a native of northern Europe, perfectly hardy here and well adapted to any soil and situation. It is difficult to explain why such a good plant, and one of such easy cultivation, is so rarely found in our gardens or offered in catalogues of commercial plants. When seen it is generally in old gardens, where it seems almost a relic of the past. The stems grow two or three feet high, making a graceful curve; they are clothed with leaves of good size and color, in the axils of which the white flowers are borne in June, in clusters of from two to five, each blossom being about three-quarters or an inch in length. It is good for massing with other strong-growing herbaceous plants and makes an excellent background for the smaller kinds. The plant is not only valuable for garden use, but is very decorative when cut and brought into the house, two or three sprays making a beautiful bouquet. It forces easily. A number of plants exhibited at the spring show of the Massachusetts Horticultural Society, two years ago, attracted much attention. The propagation is by division, good plants being obtainable in a short time.

LILIUM BULBIFERUM, var. UMBELLATUM.—The type is a native of the Tyrol and mountains of central Europe, having a rather limited range; as the name implies, bulblets appear in the axils of the leaves. In this plant, the L. umbellatum of the nurserymen's lists, these bulblets are wanting, hence this variety is often referred to L. Dauricum or some other Asiatic species. This plant is a strong grower, perfectly hardy, and thrives in any deep rich soil where the drainage is fairly good. Although it does much better in the sun, it will succeed in shade, even on the north side of a house or high fence; its time of blooming, however, is thereby much retarded. It is as easily grown as the Tiger Lily, a somewhat unusual merit in this family; and when once established, the growth and increase is so rapid that replanting is required at frequent intervals. The stems are from two to three feet high, crowned in June with an umbel of from four to six bright orange-red flowers of good size and texture; the foliage is a good deep green, retained well into the summer. Altogether it is a good plant, particularly where opportunity is given for large masses. Many varieties are offered very cheaply by the Dutch growers, but they are all much alike.

Cultural Department.

Lily-of-the-valley for Outdoor Planting.

A WELL-GROWN lot of Lily-of-the-valley is seldom seen out-of-doors, and when these plants have any place at all in the garden they are usually relegated to some out-of-the-way corner, where the roots of shrubs and trees appropriate the nutrition they need, so that there is only a meagre exhibit of flowers in May, when there ought to be an abundance of strong spikes. For some reason there seems to be a prevalent idea that imported German forcing-crowns are not hardy in the open border in this section of the eastern states. This mistaken notion is due to the fact that they are generally used in greenhouses, but no more suitable crowns could be obtained for outdoor planting than these specially prepared German crowns if they can be had early enough in the fall to be planted in the beds prepared for them. The situation of the bed is, perhaps, the most important point for insuring success; fully exposed, hot, dry situations are to be avoided, or failure is sure to follow. The beds should have a position where they are shaded through the heat of the day by overhanging trees or a building, or even a fence is sufficient to break the force of the midday sun in the heat of midsummer. There are few gardens that do not afford such positions, and the difficulty often is to know what to plant in just such places where grass refuses

to grow, and many of the shade-loving plants become weedy and possibly difficult to eradicate when once established. If suited as to soil and situation the crowns need to be lifted every third year, and to be replanted over a larger space; otherwise the crowns do not develop fully, and the flowers are small. If it is not desirable to cover more than the original space the crowns can be used for forcing in winter, and will be found to give good results. The roots can be preserved without mutilation, and mats of them can be used which will give a better spike of bloom and more foliage than is usually obtained from newly imported crowns.

The situation being decided upon, the soil should be dug out to a depth of one foot, and plenty of manure mixed with it, or if it is poor a better soil should be substituted. The bed should be filled in to the depth of six inches, and the crowns set about six inches apart each way, the roots being carefully laid out, since they do not penetrate deeply, but spread. After filling in the rest of the soil it is well to give a top-dressing of manure to protect the newly made beds from severe frost. The older beds we cover annually with a good coat of finely chopped manure as a fertilizer for the coming year. This is allowed to remain on the bed, and it is surprising to see the vigor of the foliage that pushes up through it in the spring, the blades broader than the palm of one's hand, with spikes of bloom in proportion, many with more than twelve bells to the spike. The chief danger to guard against is drought in summer; with moisture the Lily-of-the-valley will thrive in sand if well enriched.

Fig. 75.—Myrica cerifera.—See page 474.

We are hearing a good deal now about the new Russian form of Lily-of-the-valley, and this strain is being tried on a large scale this year for forcing under glass. Whether it is a distinct form or whether it is obtained by extra cultivation is at present uncertain, but the introducers claim that these crowns are grown at the foot of the Hartz Mountains, and are altogether superior to the general stock in cultivation.

South Lancaster, Mass. *E. O. Orpet.*

Achimenes.—I.

EXCEPT the Gloxinias, so-called, the genus Achimenes is the only one of the rich order of Gesneraceæ that is much cultivated. The Isolomas, Tydæas, Nægelias and others are very ornamental, some for their flowers, some for their foliage, and some for both, yet they are almost unknown in our gardens. The beautiful figures of these plants in the *Flore des Serres* have, seemingly, produced little effect in the way of extending their cultivation. Not that any are more beautiful than the Achimenes, but they are different, and variety is one source of pleasure.

Fig. 76.—Myrica Carolinensis.—See page 474.

Achimenes are natives of the tropical regions of the New World, being found in moist and rich soils, from Mexico to Brazil. Their habit of growth is to spread by underground extensions, and it was a remark of Colonel Wilder's that they must be a terrible pest in cultivated grounds, where they are hardy, just as Oxalis cernua, introduced from the Cape of Good Hope, has become in Malta. No more showy plants can be found for greenhouse decoration from May to October, and for window-boxes in the summer they are unsurpassed. They are commonly grown in a rather stiff manner, closely tied as they advance to straight, outward-inclining sticks, and so treated they make, it must be confessed, very striking objects, with their scarlet, purple or white flowers springing abundantly from every axil, each flower presenting its full face to the spectator; yet I much prefer a simpler mode of cultivation, that is, a wholly natural growth without stakes of any kind. Some have sufficiently strong stems to stand erect, others stream gracefully over the edges of the pots. I have seldom seen a more pleasing array in a greenhouse than a long shelf completely filled with pots of the fine sort called Masterpiece, all in full bloom, the flowers contrasting finely with the rich bronzy foliage. The manner of treatment which I have found satisfactory is as follows: About April 1st I pot the bulbs in ordinary garden-soil, with which a considerable quantity of leaf-mold has been mixed. They are covered about half an inch, regularly watered, and kept warm. The leaves appear above the surface in about three weeks, and, if not chilled or dried, grow rapidly and begin to bloom by the end of May. About the middle of October the flowering season is over and the pots should then be dried off. The bulbs may be separated from the earth in which they grew at any convenient time; those of the varieties of longiflora will be

found scattered through the soil, while the long and slender bulbs of the other kinds will be clustered at the base of the flower-stem. I usually put them into flower-pots, which I set upon the ground in the greenhouse, but care must be taken not to let them get too moist, lest they rot; they are not likely to get too dry in the winter.

There is no trouble about propagating Achimenes; most kinds, indeed, make an abundance of new bulbs in the pot during their growth, but all kinds may be multiplied by means of cuttings, which root very readily, and by rubbing the scales of the bulbs apart and sowing them as if they were seeds. I use the word bulb with reluctance, for their structure is not such as the general acceptation of the term would imply. They consist of small fleshy scales arranged along an axis like the seeds of the Birch. I do not name any varieties here, as I design comparing a large number in another paper.

Canton, Mass. *W. E. Endicott.*

Preserving Celery in Winter.

THE unexpectedly heavy snowfall on November 6th, and cold weather succeeding the storm, caught a great many private and market gardeners napping, and a considerable proportion of the Celery grown in this section was ruined. Where well earthed up a heavy snowfall or sharp frost can do no appreciable damage. To preserve Celery in good condition during the winter season is no easy task, and many good practical men fail in the task. For one or two seasons we tried lifting the heads and planting them in cold frames or storing in cellars. When placed in cellars the Celery kept fairly well, but became tough, stringy and of very poor flavor, owing in large measure, no doubt, to the lack of moisture at the root. In frames we usually lost a large proportion of roots from rot. For the past year or two we have succeeded in keeping Celery in good condition until the end of March in the open ground. Our late crop we plant on ground which has a gentle decline and where the soil is rather light; the plants are well watered during the growing season, and earthings up are given as required on the advent of colder weather; when sharp frost occurs a coating of leaves is placed over the trench of sufficient thickness to exclude frost; a couple of boards fourteen inches in width are nailed together and laid over the tip of the rows to throw off the water on each side, and also prevent the leaves from blowing about. On fine mild days we lift these boards off, and air is admitted as much as possible to the plants. Celery lifted with good balls of earth and heeled into trenches will keep fairly well, protected in the same way, but not so well as those which have never been disturbed at the root.

Taunton, Mass. *W. N. Craig.*

Forcing Vegetables.

ASPARAGUS.—A most suitable place for forcing Asparagus is a frame about four feet deep, with one four-inch hot-water pipe running around it. About two and a half feet of fresh stable litter should be put into the frame and firmly packed, with an inch or two of sand spread over it. This bed should be allowed to stand until the heat of the manure has declined to about seventy degrees, and not below sixty-five degrees, before the crowns are placed on it. For this work advantage should be taken of a day when the weather is mild, as the crowns are easily damaged by frost. Large crowns five or six years old are preferable to smaller ones for forcing. They may be placed rather closely together in the frame, but the distance apart must be regulated by their size. The roots should be spread evenly over the surface and covered with six inches of sand. Little water will be required as the steam from the manure affords considerable moisture, but if the bed should become dry it may be moistened with water of the same temperature as the soil in the frame. A little air may be admitted when the day is bright and warm to keep the temperature from rising above eighty degrees. When the points of the shoots begin to appear above the sand the crop is ready to cut. Where ground is plentiful a supply of forcing crowns can be kept up by sowing a little seed every year, having five or six successions, the oldest plants being forced for cuttings.

RHUBARB AND SEAKALE.—An easy and convenient method of forcing Rhubarb in the open ground is to place over the crowns a barrel with the bottom up; the bottom should be loosened so that it can be readily removed. Over and around the barrel manure should be heaped, making the pile large enough to insure its not losing its heat before the crop is fit to gather, which will be in about six weeks from the time of starting. The Rhubarb may be started any time after the old leaves have died down, but it forces more easily after it has been subjected to a good sharp frost. The young stalks can readily be had about the holidays, and the supply can be kept up all winter by successional batches. After the crop is gathered the crowns must be protected until all danger of frost is past. As the spring opens up they will start to grow again, and although they come weak at first, they soon gather strength, and after a year's rest can be forced again. This same method works equally well with Seakale, the only difference being that it does not grow so tall; flower-pots may be used for the seakale instead of barrels, and a twelve-inch pot will cover a pretty large crown.

Tarrytown, N. Y. *William Scott.*

Dendrobium Phalænopsis.—Mr. Watson's note in GARDEN AND FOREST for October 31st, as to the home of this superb Orchid, is interesting, more especially since we were treated to such a fanciful story concerning its discovery in New Guinea. But is it not possible that the plant has been found by different collectors, both in that country and Timor Laut? Messrs. Veitch say distinctly enough in their Manual that the plant is indigenous to both islands, and, moreover, the flora of New Guinea is strongly influenced by that of the Indian Archipelago, of which Timor Laut is part. To the cultivator, however, this is not of much consequence, as the requirements of Dendrobium Phalænopsis are now pretty well understood, and are easily ministered to in modern greenhouses, as it is the easiest to cultivate of all the Australian group to which it belongs. Long sprays have been in bloom here more than three weeks, and the first flowers that opened are not fading yet, though some of the spikes carry as many as twenty of them. The secret of its keeping qualities are, however, due to the fact that it has been kept in the warm house wherein it grew, and that has kept moisture off the flowers. We have found that if the plant, while in bloom, is removed to a cooler house the flowers soon decay, and the same result happens if they are dampened. The flowers are most useful for boutonnières, and a spray laid on Asparagus tenuissimus makes a rarely delicate combination. Asparagus plumosus is far too rigid to blend well with the blossoms.

South Lancaster, Mass. *E. O. Orpet.*

Anemone Japonica, Whirlwind.—There are none too many forms of Japan Anemones that are distinct and worth growing. Both of the two best known are of garden origin, and these have superseded the original typical plant, which is dwarf, bearing a semi-double dull reddish crimson flower, not nearly as beautiful as the white-flowered variety or the one called Anemone Japonica hybrida, which is identical with the white form, except in the color of its flowers, which are pink. We have now another variety, quite new, pure white, and with an inner row of petals that give the flowers a semi-double appearance, and the effect is pleasing. I have observed a disposition to criticise the flower and doubt its usefulness, but I believe it will prove an acquisition as a garden-plant. Our plants thus far are small in habit, but this may be due to their age, and it may be outgrown. If Whirlwind attains to the stature of the white and pink forms it will be valuable. It is worth noting here that within the last year or two an Irish grower has succeeded in raising seedlings, and some of these are said to be very large and beautiful. If this is true, American dealers ought to lose no time in introducing them to American gardens.

Boston, Mass. *Plantsman.*

Correspondence.

How Plants Behave in a Mild Autumn.

To the Editor of GARDEN AND FOREST:

Sir,—The unusually warm month of October has had some interesting results. It has exhibited the tendency in deciduous plants to become evergreen in a continually warm atmosphere; that is, to make the fall of the leaf a less regularly recurring, periodic crisis in the life of the plant.

I have in my yard, in Boston, among other shrubs, a Lilac, a Hawthorn, a Kerria and a Deutzia, all of which are, more or less, covered with leaves. They are shrunken, shriveled and discolored, but they still hang on, in spite of nearly a week of freezing weather and a heavy snowstorm. The leaf-stems of the Lilac are as fresh, green and pliant as in midsummer. The Kerria has leaves as fresh as in midsummer; the buds, which are in their axils, have burst, and the young leaves, which belong to next spring's growth, are protruding from them, green and vigorous. The persistent warm weather allowed the sap to continue to rise after the period of the ripening process had gone by; and this constant supply of nutriment gave to the

leaf-stems, in particular, a new lease of life, preventing the ordinary cessation of growth and consequent readiness to fall away from their attachment.

I notice in the Public Garden and on the mall in the Common that quite a number of shrubs and trees still retain their leaves to a certain extent, and it is always the latest growths which remain. Some of the English Elms look quite yellow, although they have been exposed to snowstorms and high winds. Many of the weeds growing in the waste lands around have had a November bloom. The Œnotheras had their season of growth and went to seed; their spikes of open capsules became dead, woody matter long ago. But a few, lingering, half-dead little buds below them have sprouted under the warm sun, and little flowers, not a quarter as large as the summer ones, have made their appearance. Sweet Clovers have taken on a new growth, as vigorous as the earlier ones in summer. These are slight instances of life's changes, being the results of life's environment; faint beginnings of Nature's forces in the evolution of differing habits and forms in the vegetable world.

I have noticed, this season, the marked difference between the areas of coloration in plants which continue to grow as long as the temperature permits, not ceasing when a certain maximum amount of development has been reached, as in Maples and Lindens. The Japanese Ampelopsis, so common here, exhibits remarkable differences in the time and place of its changes. The young growths retain their brilliant green, while the leaves upon the old wood have assumed the rich reds of autumn. I watched one of our native creepers in Hingham this summer, the leaves of which, upon the last year's growth, went through all the gradation of change of color up to a brilliant scarlet and then fell away, long before any frost had appeared; while the smaller leaves, of this summer's growth, were still living, of a fresh, bright green.

These are evidences that a leaf ripens when it has gone through a certain term of individual existence and reached the last of its life changes. If the environment begins to change, then the life-history will not repeat itself; it will change also. Our scarlet Ampelopsis, acclimated under a tropical sun, might never blush at all nor drop its leaves at regularly recurring periods.

Boston. *S.*

Plant Houses at Summit, New Jersey.

To the Editor of GARDEN AND FOREST:

Sir,—The close competition in business which characterizes our time has by no means left at one side the growers of market flowers, and it is interesting to visit places where the most advanced methods are adopted and only a few species of flowers grown to the highest state of development. This was the thought forcibly brought home to me on the occasion of a recent visit to the plant house of Mr. John N. May, of Summit, New Jersey, where I went primarily to inspect his Chrysanthemums. Mr. May's flower factory is devoted practically to Roses, Carnations and Chrysanthemums. The thirty-odd houses are mostly of the modern type, three-quarter span, facing south, and set in ranges on each side of two spacious packing-sheds. The newer houses are steam-heated, but hot-water circulation is also used in part of them. The most striking general feature of the place, besides the general air of cleanliness and tidiness, was the fact that there was not a solid bed in any of the houses. Everything is grown on shallow benches holding about three inches of earth. These benches are of varying heights, usually arranged so that the plants will have all the light possible without being too near the roof. Many of the Chrysanthemums had been cut just previous to my visit. One house was wholly cleared, and was now being planted with Carnations. On the 7th of October Mr. May began to cut Yellow Queen, Mrs. E. G. Hill (pink), Kate Brown (white).

A small span-roofed house was so filled with flowers that its roof showed almost an unbroken lining of color. This is not incredible when it is stated that the single-stemmed plants are grown only a foot apart each way, and these were almost invariably furnished with a bloom of exhibition size. They were rooted cuttings in July, at which time they were planted on the benches. I am constitutionally blind to rust, mildew and insects on my neighbors' plants, but in this case am sure that the foliage could not have been better or stems more perfectly covered to the ground. Any one who has grown Chrysanthemums out-of-doors knows that they will gather any mildew afloat, and that a cool rain is always a signal for loss of foliage. The protection of glass seems to obviate this trouble.

Of the flowers I thought Mr. May's Minerva a glorious one in size and form, and especially in its rich lemon-yellow color. Among the numerous yellow kinds I think there is no other exactly of this shade. Mayflower was in first-rate character this year, but the Queen, Mr. May's white variety of the previous year, had been already cut, as had Daybreak, his new pink variety. The sample seen resembled in shade a La France Rose. Mr. May had several new wonders, but the only one I remember is the recently named Dean Hole, which is a fine white, but slightly flushed pink on outer petals at some stages. Among other kinds the silvery white Niveus was particularly good, and Eugene Dailledouze seems to be a good late yellow.

In the Carnation houses, besides the main plantings of standard varieties, Mr. May is getting up stocks of a few new kinds in which he has great confidence. One of these, Maud Dean, seems to possess all the qualities of a perfect Carnation, narrow glaucous foliage, neat and long stems sufficiently rigid to carry the large flowers without staking. The flower is full-petaled, light pink at first, flushed crimson at the base of the petals. This is lost later, and in perfection it is of a most delicate pink, lighter than Daybreak. The Dean Hole, a name which has lately been given to many kinds of garden flowers, is this time applied to a yellow Carnation, scarlet-flaked—a strong-growing plant—with broad leaves and large flower, on the Clove Carnation order. Lena Saling is a rosy Carnation of great size, which was seen only in cut state, where a test was being made to discover how long it would "stay awake." Next to a bursting calyx, the fault of going to sleep, or folding its petals, is a most grievous fault in a market Carnation. There appears to be no end to new florists' Carnations, but it seems to me that the florist who will furnish us two or three nice spikes of foliage with each flower will meet the want most seriously felt.

All the most fashionable Roses are grown here in great quantities. The new Mrs. J. Pierpont Morgan has already been noted in GARDEN AND FOREST as a most brilliant Rose under artificial light. Great use is made here in all the houses of galvanized wire. The general plan is to run wires from end to end of bench along each row of plants, with corresponding wires overhead. When necessary, vertical wires are attached to the horizontal ones. These vertical wires are sometimes thin ones, and in other cases rigid stakes, say an eighth of an inch in diameter. All perishable stakes have been discarded. If the absence of solid beds is the most striking feature of the place, I think the visitor must be really more impressed with the evident care and attention given to each branch of each plant among the thousands grown.

It would, perhaps, be impossible to find in any private place any such detailed care given to cultivation. Each plant among the thousands seems quite a duplicate of its neighbor, and is treated like a delicate little machine whose work it is to produce the most money. It is by no meaus machine work, however, to secure with any certainty a profitable crop of flowers, even under the best conditions. Druggists will always say that "business will be good with them as soon as the furnace fires are started," and, like humanity, plants become very tender and subject to vicissitudes as soon as they are exposed to artificial heat.

It is often said that there are no secrets in growing plants, but this is scarcely more than a half truth. After every detail has been given over and over again most frankly by the most experienced growers, there still remain secrets which nature only reveals to those who devote to their work a kind of talent which, in many cases, seems instinctive, rather than acquired.

Elizabeth, N. J. *J. N. Gerard.*

Recent Publications.

Trees of Worcester, by Miss Arabella H. Tucker, a teacher in the Normal School at Worcester, Massachusetts, is a list of the trees, native and introduced, that grow in the streets and grounds of that city, with such directions for finding them that any student of trees in Worcester, with this useful volume at hand, will have no difficulty in locating its most remarkable and interesting specimens. Mention is made of 161 species, of which seventy are exotic, and thirty-five more, although indigenous to the United States, do not grow naturally in Worcester County. The people of Worcester appear to have early appreciated the value of shade-trees, for in 1783 the following ordinance was passed: "Whereas, a number of persons have manifested a disposition to set out trees for shade near the meeting-house and elsewhere about the town, and the town being desirous of encouraging such a measure, which will be beneficial as

well as ornamental, vote, that any person being an inhabitant of this town that shall injure or destroy such trees shall pay a fine not exceeding twenty shillings for every offense, for the use of the poor." Such books of local information as this one, which was inspired by and modeled on Mr. John Robinson's excellent *Trees of Salem*, can but increase the knowledge of trees and the affection and respect with which they are held in the community, and more of them ought to be written.

Notes.

Grape-vines laid down on the ground will endure the winter much more safely, even without any covering, than they will when exposed to the wind, as they are on a trellis. It is safer, however, in this climate to give them a light covering as freezing weather comes.

It is stated in a bulletin of the North Carolina Agricultural Station that green tomatoes can be satisfactorily ripened if they are gathered when a sharp frost is imminent, wrapped separately in paper, packed in boxes and stored in a place just warm enough to keep them secure from frost. If brought out a few at a time, as they are wanted, and placed in a warm place, they will ripen in a few days. Tomatoes of good quality have been ripened in this way as late as the middle of January.

A correspondent of the *New England Farmer* writes that parchment paper can be used with good effect in a small garden as mulch. Brown paper, dipped in sulphuric acid and made tough and water-proof, is used for this purpose, and it is said in time of drought to have proved effective in checking evaporation and keeping down weeds. Experiments with this paper may be worth trying in a small way, but we should suppose that a thicker layer of some more porous and permeable substance would be preferable.

The wine-makers of California have organized an association which is said to represent five million gallons out of the eight million gallons which it is necessary to control in order to establish a fair price for the wines of that state and extend their sale in the east. Although it costs fifty cents a gallon to import French wines, California producers have been compelled this year to accept ten cents, and in many instances as low as seven cents a gallon for good wine, prices at which there is an actual loss to the grower of wine-grapes.

A correspondent of the *Country Gentleman* objects, with some force, to the practice of removing young trees from the nursery rows in autumn before they have completed their growth. It is a common practice to strip the leaves off from these trees, which does no hurt if the wood is matured. They will then come off easily, but if this is done while the tree is still growing it often shrivels, and suffers in consequence. For orchard planting the writer prefers small well-rooted trees. These are cut back low to the ground the next spring, and they will then grow rapidly, need no staking, and the ample root-system will insure a good top.

At a recent meeting of the Indiana State Horticultural Society a bill was prepared for presentation to the next Legislature, which authorizes the creation of a Bureau of Forestry, Horticulture and Irrigation, and provides for an annual tax of five mills upon every hundred dollars' worth of taxable property in the state for the purpose of establishing an arboretum and a farm for experimental grounds in forestry and horticulture. Another section makes it lawful for townships, counties and cities to purchase and hold in fee simple lands which can be devoted to forest-planting, or to experiments in horticulture, or irrigation, or for public assemblies, or for military encampments.

A correspondent of the *Agriculturist* finds that she can get Sweet Peas early by sowing the seed in October. A bed is dug up deeply, made fairly rich, and the peas are put in only about two inches deep, although after they come up a little earth is sprinkled over the rows. They are three or four inches high before cold weather sets in, when a simple cold frame, twenty inches high at the back and twelve on the front or south side of the row, is put on and old sashes laid over this. Dry leaves and manure are heaped against the frame on the outside, and the plants keep growing a little all winter long. On warm days the sashes are lifted for a few hours, and by the first of April the plants are a foot high and ready for brush. Emily Henderson, Blanch Ferry and Dorothy Tennant under this treatment will be in bloom before spring-planted Peas are fairly up and growing.

Mr. S. D. Willard, in the *Rural New Yorker*, states that nothing is better for covering bruises on trees than oil shellac, with, perhaps, a little flower of sulphur and a few drops of carbolic acid, which last ingredient should be used very sparingly. The mixture can be applied with a paint-brush. For the exclusion of air from wounds, it is suggested that a grafting wax, made of four parts of resin, two parts of beeswax and one of tallow, melted together, poured into water and immediately worked and made up into half-pound rolls, is convenient to have ready for use. Held in the hand so that it is softened, a small lump of it may be spread over a wound, and it will remain for some time and keep out air and germs of disease. If the wound is large the application may need to be repeated.

None of the new crop of Pignolia nuts have yet arrived, but what remains of last year's crop sells for twelve and a half to fourteen cents a pound at wholesale. These nuts come from Italy and the Levant, and are the seeds of Pinus Pinea. They do not keep well in summer-time and have to be held constantly in cold storage. They are used mostly for making confections. The edible seeds of our own Nut Pines of the Pacific coast are known as Piñons; they are borne by Pinus Parryana, P. edulis, P. monophylla and P. cembroides. These smaller native nuts furnish the Indians with a valuable article of food, and are agreeable to the taste, but they have not gained any place in commerce here. Of the foreign product more than 100,000 pounds are disposed of in our country in a year.

But nine car-loads of California fruit reached this city last week, mostly grapes, and as these supplies have diminished, prices of bananas and Florida oranges have increased from fifteen to twenty per cent. Nearly 40,000 boxes of Florida oranges arrived last week, and in riper condition than the earlier receipts. A limited stock of the showy Japanese persimmons—the best that have come here this season from Florida—may now be had, and these cost from sixty to seventy-five cents a dozen. Small lots of these persimmons from California are also in the market. Strawberries, in refrigerator boxes holding 105 pint cups each, have been received from California during the past week, and sold at retail at seventy-five cents a cup. Large fancy varieties of cranberries command as much as twelve dollars a barrel.

Only a short time ago it was made public that a beautiful tract of land, containing nearly one hundred acres, in the western part of the city of Hartford, Connecticut, which had belonged to the late C. M. Pond, had been bequeathed to the city for park purposes, and $180,000 were added to buy more land, if it was needed, and to help in improving it. Eighty acres more in the south-western part of the city were afterward offered by Colonel Pope, and it is now stated that by the will of Mr. Henry Kenny, who died last week, a sum amounting to more than half a million dollars has been left in trust to purchase suitable land in the northern quarter of the city for park purposes. If these tracts of land are connected by broad tree-lined avenues, as is likely, the result will be a continued stretch of eight miles of park and parkway, sweeping in a semicircle half-way round the city. Hartford will be fortunate if the most is made of these inviting opportunities by some designer of taste and experience.

At the late meeting of the Association of Economic Entomologists there was some discussion as to the value of an implement which has been devised by Professor Goff, by means of which kerosene is mixed with water at the instant of passing through a spraying nozzle, so that there is no need of making an emulsion previously. It is claimed that the machine is so arranged that the piston draws on both the water and the kerosene supply and mingles the two fluids in correct proportions. A machine constructed on this principle has been put on the market, but some of the members of the association who had tried it had found it unsatisfactory. Mr. Marlatt, of the Department of Agriculture, stated that the practical working of the machine with him had rendered any application of the oil dangerous to plants since it was impossible to foretell the percentage of oil used. It would seem, therefore, that this would be a dangerous implement to put in the hands of horticulturists, and until some more certain plan of insuring uniformity in the ratio of the water to the oil is devised, it will be much better to adhere to the standard emulsions, which, after all, are not difficult of preparation, and have the advantages, beyond the mere attenuation of the oil, of giving the mixture consistency, which extends its action. Besides this, wherever the spray collects in drops free oil will always separate in sufficient amount to injure the foliage.